

**Tabanus variegatus** Fabr.

*Tabor* (S. E.). September, 1905; Woglum.

**Tabanus wiedemanni** O. S.

*Lagrange* (E.). Early August, 1904; Sherman.

*Southern Pines* (S. E. C.). Early July, 1904, and early June, 1904; Rev. A. H. Manee.

### 3. SEASONAL RANGE OF COMMONER TABANIDAE AT RALEIGH, N. C.

The species are arranged in the order of their appearance in the year, beginning with the earliest-appearing forms and closing with those that appear latest in the season. Based on the observations of C. S. Brimley.

<i>C. brimleyi</i> , April to May 18, one on June 18.	<i>T. cerastes</i> , May 29 to June 20.
<i>C. niger</i> , May 2 to June 13.	<i>T. stygius</i> , May 30 to July 10.
<i>C. callidus</i> , May 2 to Sept. 13.	<i>C. fallax</i> , June 5 to June 18.
<i>T. carolinensis</i> , May 2 to May 13.	<i>C. cursim</i> , June 7 to July 17.
<i>T. pumilis</i> , May 7 to Aug. 17.	<i>T. molestus</i> , June 7 to July 20.
<i>C. ceter</i> , May 7 to May 13.	<i>T. melanocerus</i> , June 7 to July 17.
<i>C. univittatus</i> , May 7 to Sept. 9.	<i>T. trimaculatus</i> , June 17 to July 23.
<i>C. carbonarius</i> , May 15 to June 15.	<i>C. fulvistigma</i> , June 11 to July 25.
<i>C. lugens</i> , May 18 to Aug. 16.	<i>T. atratus</i> , June 11 to Oct. 11.
<i>C. flavidus</i> , May 20 to Oct. 18.	<i>T. coffeatus</i> , June 13 to July 23.
<i>T. lineola</i> , May 25 to Sept. 18.	<i>T. americanus</i> , June 19 to Aug. 18.
<i>C. obsoletus</i> , May 26 to Oct. 1.	<i>T. fronto</i> , July 4 to Sept. 17.
<i>C. vittatus</i> , May 26 to Oct. 10.	<i>C. sequax</i> , July 9 to Sept. 9.
<i>T. fulvulus</i> , May 28 to July 10.	<i>T. longus</i> , July 14 to Sept. 13.
	<i>T. variegatus</i> , Sept. 2 to Oct. 29.

## New North American Pachyrhina, with a Table for Determining the Species.

BY R. W. DOANE, Stanford University.

In working over the large series of *Pachyrhina* that have come to me from time to time I have found it desirable to revise Loew's table (Vehr. Zool-Bot. Ges. 1879, 513-516) to include the Mexican species and other species that have since been described. Believing that it may prove helpful to some, especially as Loew's table is not easily accessible to all, I give



13. Anterior ends of the lateral stripes of the thorax curved out,  
*lineata* Scop.  
 Anterior end of lateral stripes not curved out . . . . . *lugens* Lw.
14. Antennæ for the most part black or fuscous . . . . . 15.  
 Antennæ yellowish, darker toward the tip . . . . . *consularis* O. S.
15. Pleura and metanotum spotted . . . . . 16.  
 Pleura and metanotum without spots . . . . . *nobilis* Lw.
16. An opaque spot on the lateral thoracic stripes . . . . . *nigrolutea* Bell.  
 No opaque spot on the lateral thoracic stripes . . . . . 17.
17. Rostrum shining black above, yellow below . . . . . *usta* O. S.  
 Rostrum yellow . . . . . *mexicana* Macq.
18. Thoracic dorsum opaque . . . . . 19.  
 Thoracic dorsum shining . . . . . 22.
19. Stigma brown . . . . . 20.  
 Stigma yellowish . . . . . 21.
20. Lateral margins of the lateral thoracic stripes with three velvety-  
 black spots. . . . . *elegantula* Will.  
 Lateral thoracic stripes without black spots . . . . . *unimaculata* Lw.
21. Antennæ longer than usual . . . . . *macrocera* Say.  
 Antennæ shorter than usual . . . . . *tenuis* Lw.
22. A velvet black spot at the anterior end of the lateral thoracic stripe.  
*punctum* Lw.  
 No velvet black spot at the anterior end of the lateral thoracic  
 stripe . . . . . 23.
23. Joints of the flagellum, except the basal ones, blackish . . . . . 24.  
 Joints of the flagellum in two colors . . . . . 30.
24. Occiput altogether shining . . . . . 25.  
 Occiput opaque, with a shining triangular spot in the middle.
25. Cross-veins clouded . . . . . *unifasciata* Lw.  
 Cross-veins not clouded . . . . . 26.
26. Front and occiput unicolorous . . . . . *sodalis* Lw.  
 Front and occiput with a black stripe . . . . . *occipitalis* Lw.
27. Thoracic suture colored with black at both ends . . . . . 28.  
 Thoracic suture not colored black . . . . . 29.
28. Posterior margin of the eighth sternite of the male with a rather deep  
 rounded incision, the edges of which bear long yellow hairs.  
*occidentalis* n. sp.  
 Posterior margin of the eighth sternite of the male straight or nearly  
 so, yellow hairs much shorter and sparser . . . *ferruginea* Fabr.
29. Stigma brownish-yellow . . . . . *occipitalis* Lw.  
 Stigma blackish-brown . . . . . *gracilicornis* Lw.
30. Joints of the flagellum black at the base . . . . . 31.  
 Joints of the flagellum yellow at the base . . . . . 35.
31. Occiput without distinctly defined shining triangle. *xanthostigma* Lw.  
 Occiput opaque, with a distinct shining triangle . . . . . 32.
32. Costal cell colorless, stigma dark brown . . . . . *abbreviata* Lw.  
 Costal cell colored, stigma yellowish-brown . . . . . 33.



broad black shining band on the occiput and the vertex attenuated anteriorly; a small indistinct reddish-brown spot above each eye; rostrum yellow with a brown spot on each side close to the base; palpi brownish, lighter at the joints; first two segments of the antennae yellow, others wholly brownish-black, middle segments slightly excised below; thorax sulphur yellow; dorsal stripes black, shining, the median one slightly dilated anteriorly; collare orange-yellow in the middle, blackish or brownish on the sides; a small back dash in the dorsal-pleural membrane just before the base of the wing; pleura sulphur-yellow, variegated with one or two reddish-yellow spots; scutellum reddish-brown; metanotum yellow with a faint reddish-brown spot posteriorly; halteres brownish-yellow, darker toward the tip; coxae and base of femora light yellow; femora and tibia brownish-yellow, black at the tips; tarsi black; abdomen yellow with dorsal, lateral and ventral, interrupted black stripes; eighth and ninth tergites of male wholly black; eighth sternite black, the posterior angles and a narrow border of the deep V-shaped incision yellowish, posterior angles bearing a few yellow hairs of moderate length; appendages of the hypopygium yellow; eighth segment of female black, ovipositor reddish-yellow, upper valves long, slender, very slightly decurved at the tip, lower valves not reaching to the tip of the upper valves; wings hyaline; costal and subcostal cells with a slight yellowish tinge; stigma brown; second posterior cell sessile. Length, male 13 mm., wing 13 mm., female, 14 mm., wing 13 mm.

*Hab.*—Wyoming. One male, one female.

Much like *P. vittula* Lw. but may be distinguished by the fewer lighter markings on the pleura and particularly by the deep V-shaped incision on the posterior margin of the eighth sternite of the male.

***Pachyrhina occidentalis* n. sp.**

Yellow; head opaque, orange-yellow above, much lighter yellow behind the eyes and below; occiput with an arrow-shaped brownish spot; rostrum, palpi and first three segments of antennae orange-yellow, remaining segments of antennae dark brown; palpi darker toward the tip; thorax light yellow, dorsal stripes brownish-yellow or reddish-yellow, broad, shining, the lateral ones expanding somewhat anteriorly; the sides of the collare, the coxae and irregular spots on the pleura, brownish or reddish-yellow; thoracic suture marked with black at both ends and with a black spot in the middle; three black spots along the dorso-pleural membrane, the first just back of the collare, the second a short distance in front of the wing and the third at the base of the wing; scutellum and metanotum with a broad, reddish-yellow stripe; halteres yellowish at the base, darker toward the tip,

knobs brownish; femora and base of tibiae brownish-yellow, tibiae growing darker toward the tip; tarsi brown, terminal segments almost black; abdomen brownish-yellow, darker posteriorly, posterior and lateral margins of the segments but slightly darker; the eighth sternite of the male long, broad, conspicuous, the posterior margin with a rather deep rounded incision, the edges of which bear a conspicuous fringe of long yellow hair; posterior margin of the ninth tergite with a small V-shaped incision, the edges of which are black; ovipositor reddish-yellow, upper valves straight, tips rounded, lower valves not reaching the tips of the upper valves; wings hyaline; stigma brown, more or less distinct; second posterior cell sessile or with a very short petiole (in two of my specimens this cell is broadly sessile in one wing, and with a very short petiole in the other wing). Length, male, 11 mm., wing, 11 mm.; female, 15 mm., wing, 15 mm.

*Hab.*—Central and Southern California, Montana, Eastern and Western Washington, Nevada, Arizona. (type from Stanford University, Cal.) Many males and females.

This species is very like *P. ferruginea* of the eastern United States and doubtless is the one that has been recorded from California as *ferruginea*. The long, broad eighth sternite of the male with its deeply cleft, long-haired posterior margin at once separates it from *ferruginea* in which this sternite is only slightly curved or cleft along the posterior margin and is provided with much shorter sparser hairs. The specimens from Arizona and one of the Washington specimens have the anterior lateral margins of the median thoracic stripe bordered with brown and in some the anterior ends of the lateral stripes are also marked with brown. The brown spot on the occiput is sometimes quite indistinct, in other specimens it is well marked, sometimes drawn out into a narrow line anteriorly. In a few of the specimens the tip of the knob of the halteres is yellowish. The palpi are sometimes wholly yellow and the 4th, 5th, 6th segments of the antennae of the female are usually more or less yellow.

***Pachyrhina breviorcornis* n. sp.**

Yellow; head yellow, with a brownish tinge and a small triangular brown spot above, lighter behind the eyes; rostrum yellow, brown on the sides; palpi yellow; antennae with thirteen segments, first and second wholly yellow, third elongate, basal half yellow, distal half brown,



segments four to twelve brown with the basal one-fourth or less yellow, all gently excised below, with a dense soft pubescence and a whorl of moderately long hairs, only four or five hairs in each whorl, thirteenth segment short, conical, wholly brown; thorax yellow; dorsal stripes reddish-brown; pleura light yellow, a spot below the wing brownish yellow; scutellum yellow with a brownish tinge above; metanotum yellow; halteres brownish, lighter at the base, knobs darker; coxae brownish yellow; legs yellowish-brown, tarsi and tips of femora and tibiae darker; abdomen brownish yellow, darker posteriorly, with dorsal, lateral and ventral rows of black spots, those on the dorsum less distinct posteriorly, hypopygium small; eighth sternite with a rather deep U-shaped incision; wings with a faint yellowish tinge, costal and subcostal cell yellowish, stigma darker yellow; second posterior cell sessile. Length, 14 mm., wing 13 mm.

*Hab.*—Battle Creek, Mich. One male.

Somewhat like *P. eucera* Lw. but antennae only thirteen segmented, last segment shorter and the middle segments not so deeply excised. The second posterior cell in *eucera* is subject to considerable variation, in some of the specimens before me this cell is broadly joined to the discal cell, in others it has a short petiole, in a few the petiole is as long as or longer than the anterior cross vein.

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## Some Oxybeline Wasps from New Mexico.

BY S. A. ROHWER AND T. D. A. COCKERELL.

**Oxybelus fossor** n. sp. ♀ Length  $4\frac{1}{2}$  mm. Head and thorax deeply and densely punctured, the punctures on the vertex sparser, mesothorax shining but very strongly punctured; face, cheeks and pleura with silvery pubescence; prothorax not strongly carinate; mesonotum without depression; scutellum and postscutellum with medial longitudinal carina; mandibles except tips, narrow margin of prothorax at sides, tegulae, squama and two spots in front and spine white; antennae (flagellum darker above), legs except coxae, four anterior trochanters, line on intermediate femora above and the anterior femora above rufous; abdomen clear red, shining, sparsely punctured (the punctures denser beyond the second segment), thinly clothed with white pubescence; a broad band on first abdominal segment squarely interrupted in the middle, a linear rudimentary band on second and third segments creamy white; the medial depression of first segment is indistinct. Wings milky hyaline, nervures pale ferruginous.